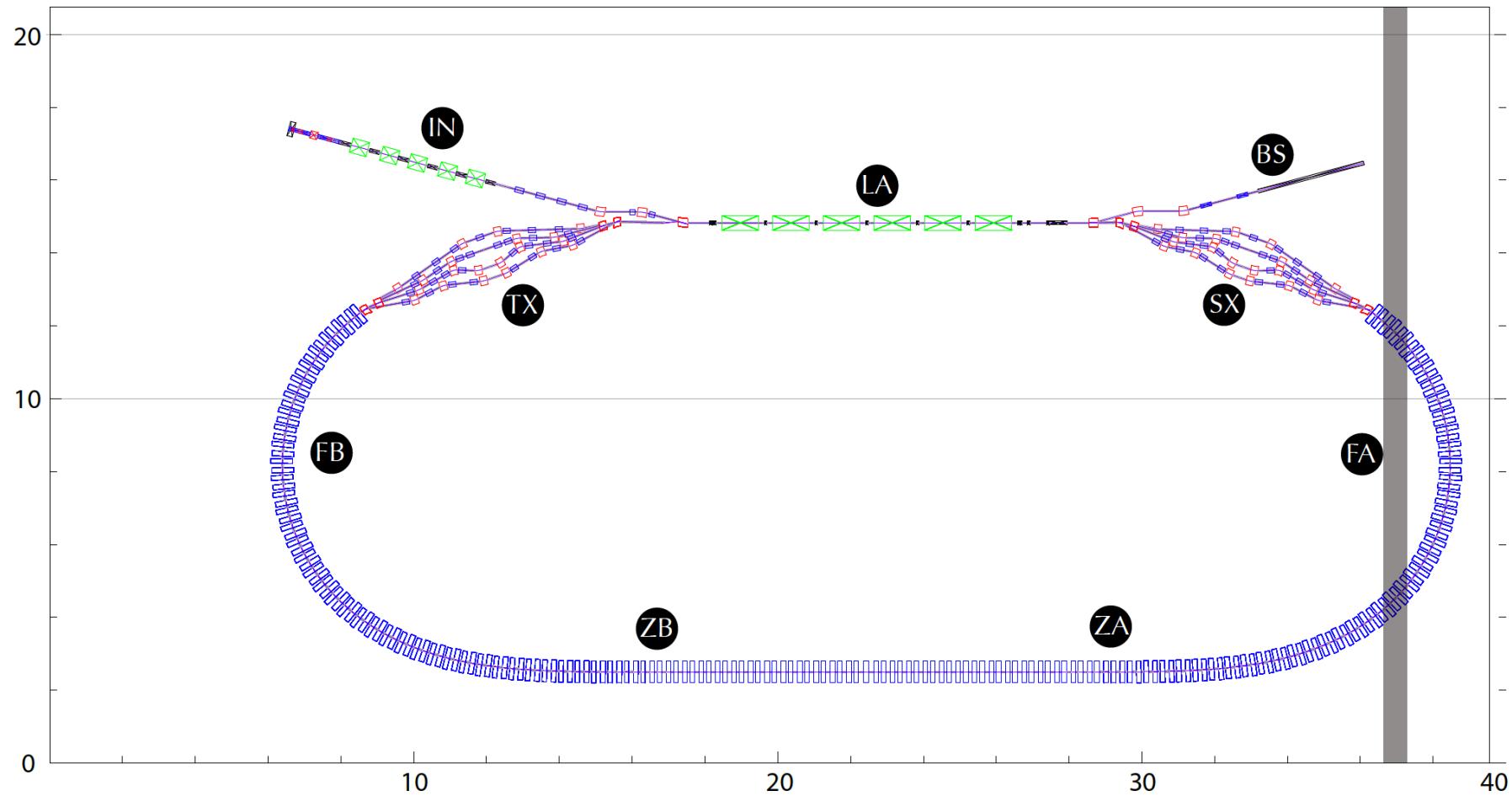


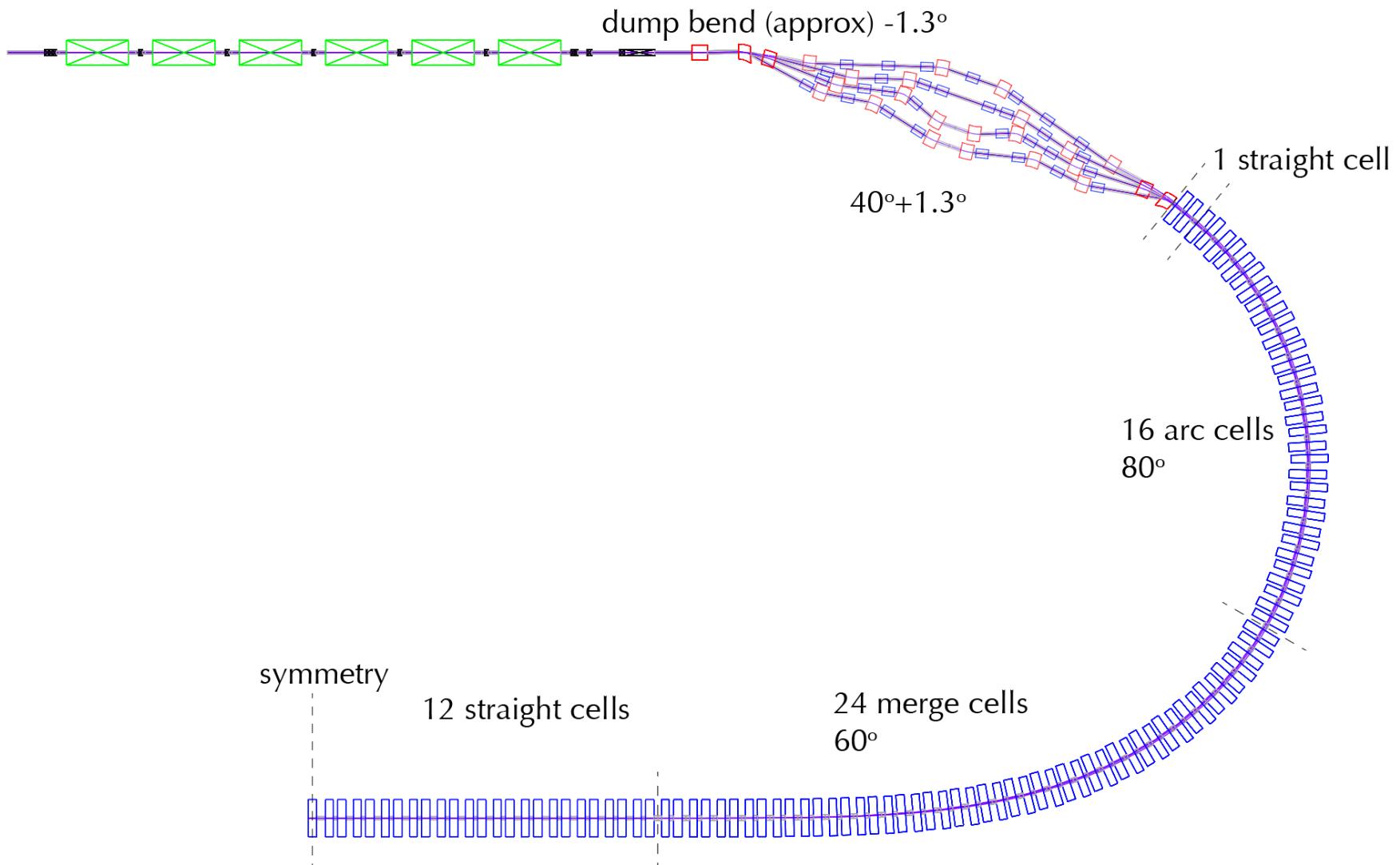
CBETA Layout and Optics

Christopher Mayes – May 5, 2016

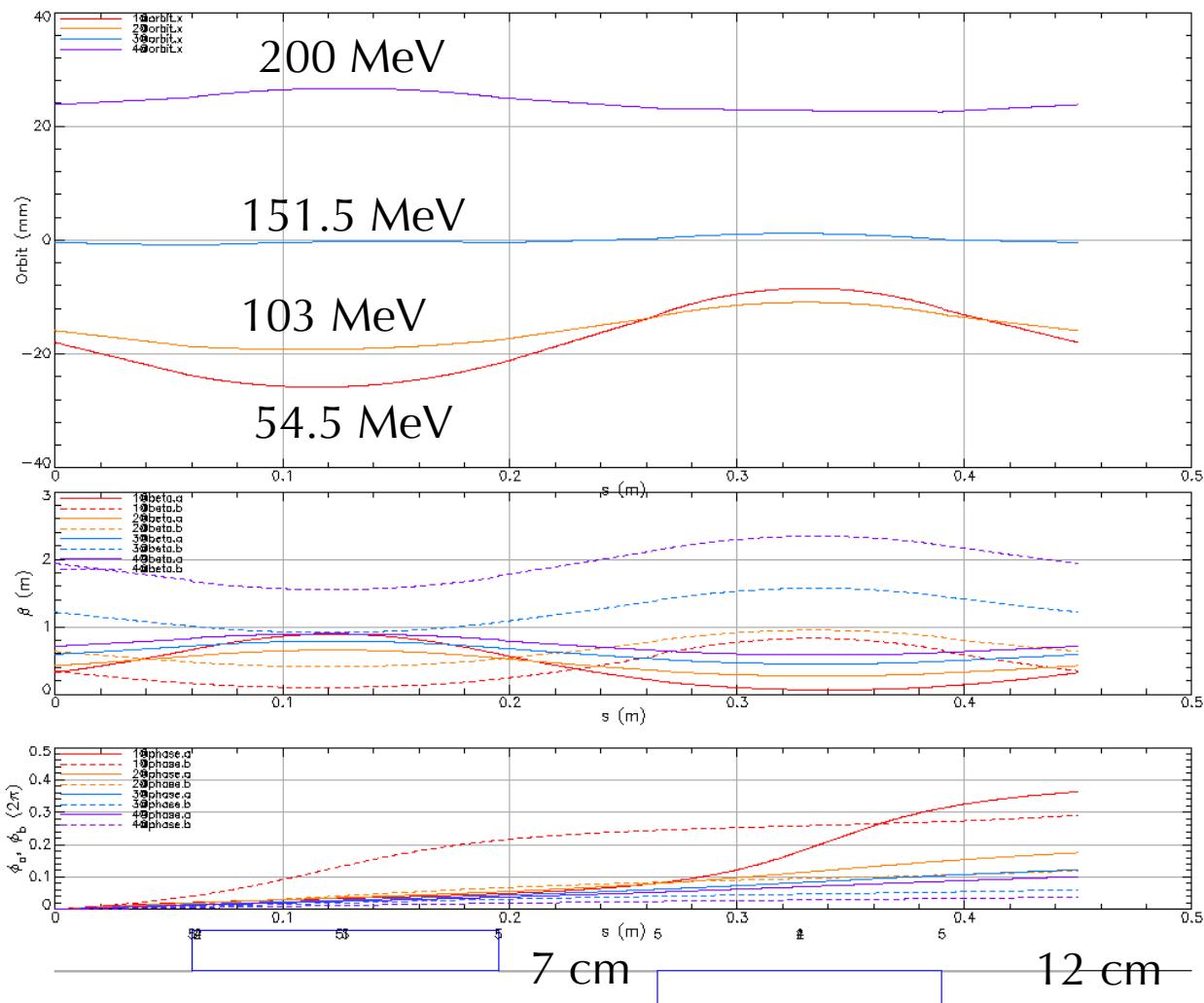
Layout in L0E



Symmetric geometry



FFAG Cell (5 deg)

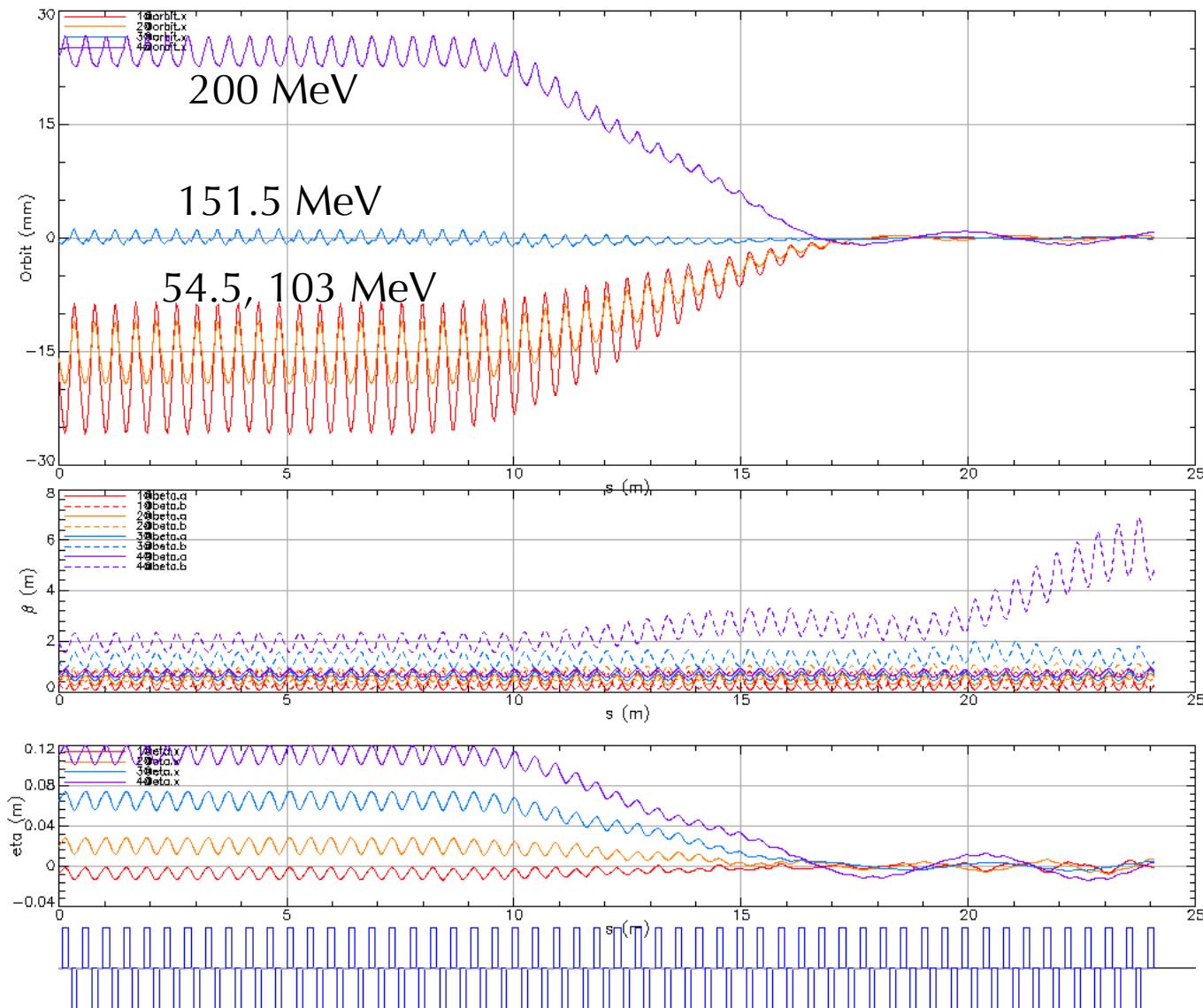


QF
13.5 cm
-13.4 T/m
-7.5 mm offset

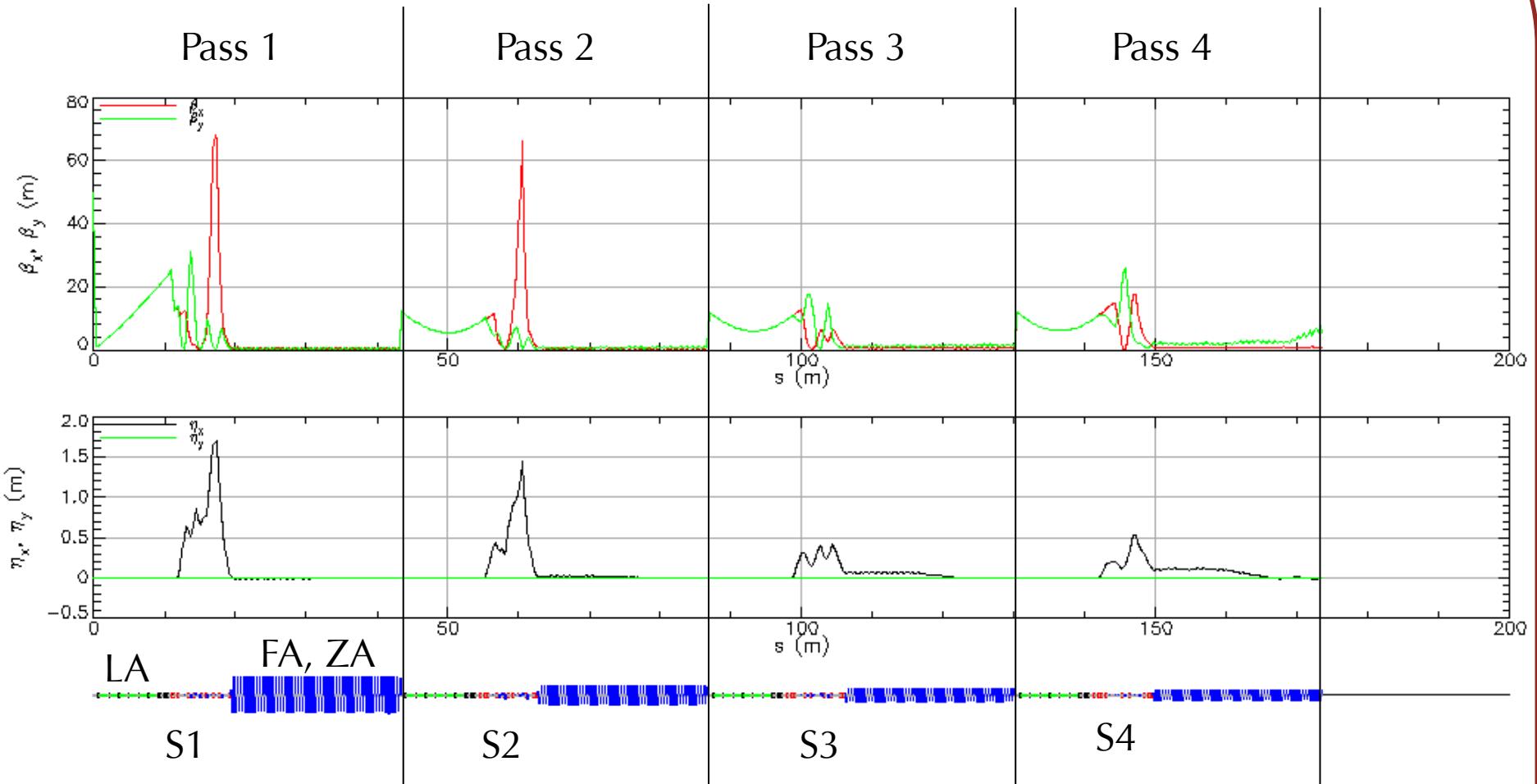
QD
12.5cm
12.6 T/m
20.8 mm offset

Christopher Mayes – May 5, 2016

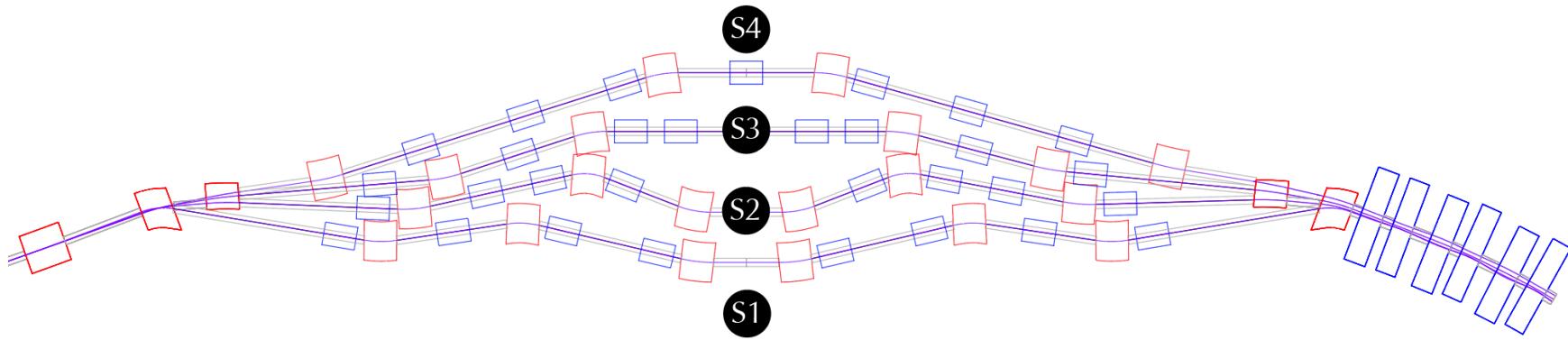
FFAG Arc, Merge, Straight



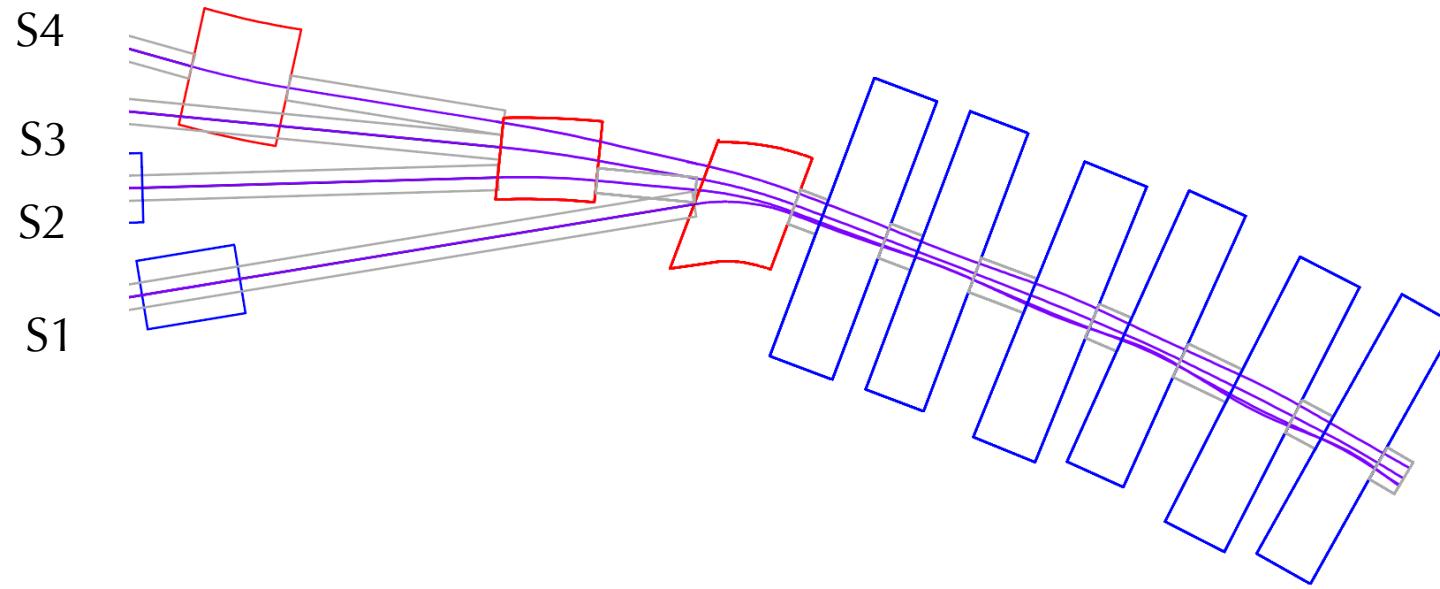
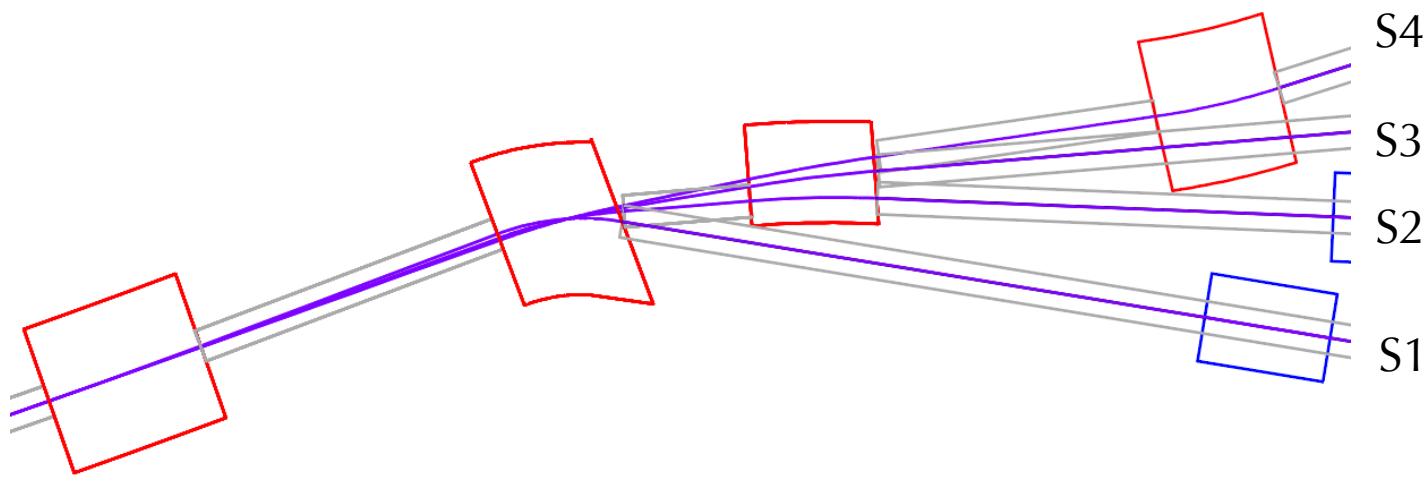
Symmetric optics



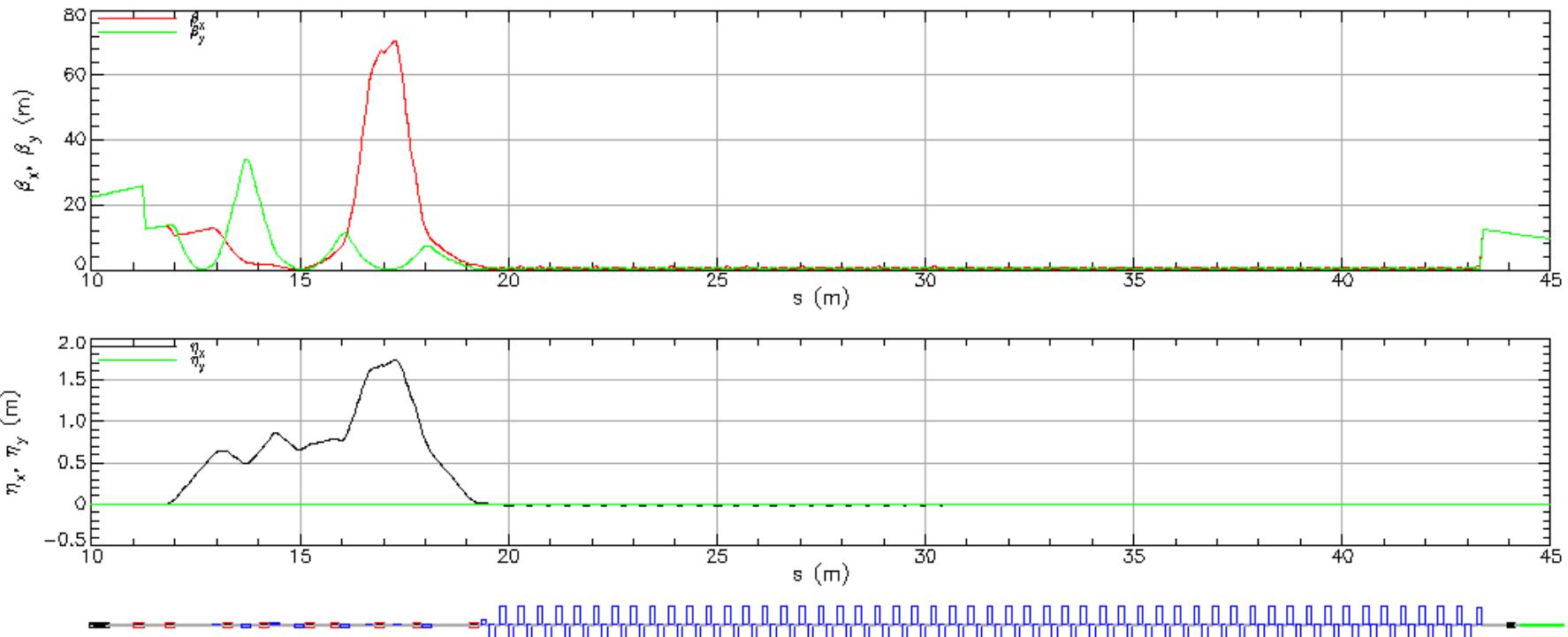
SX demerge and merge



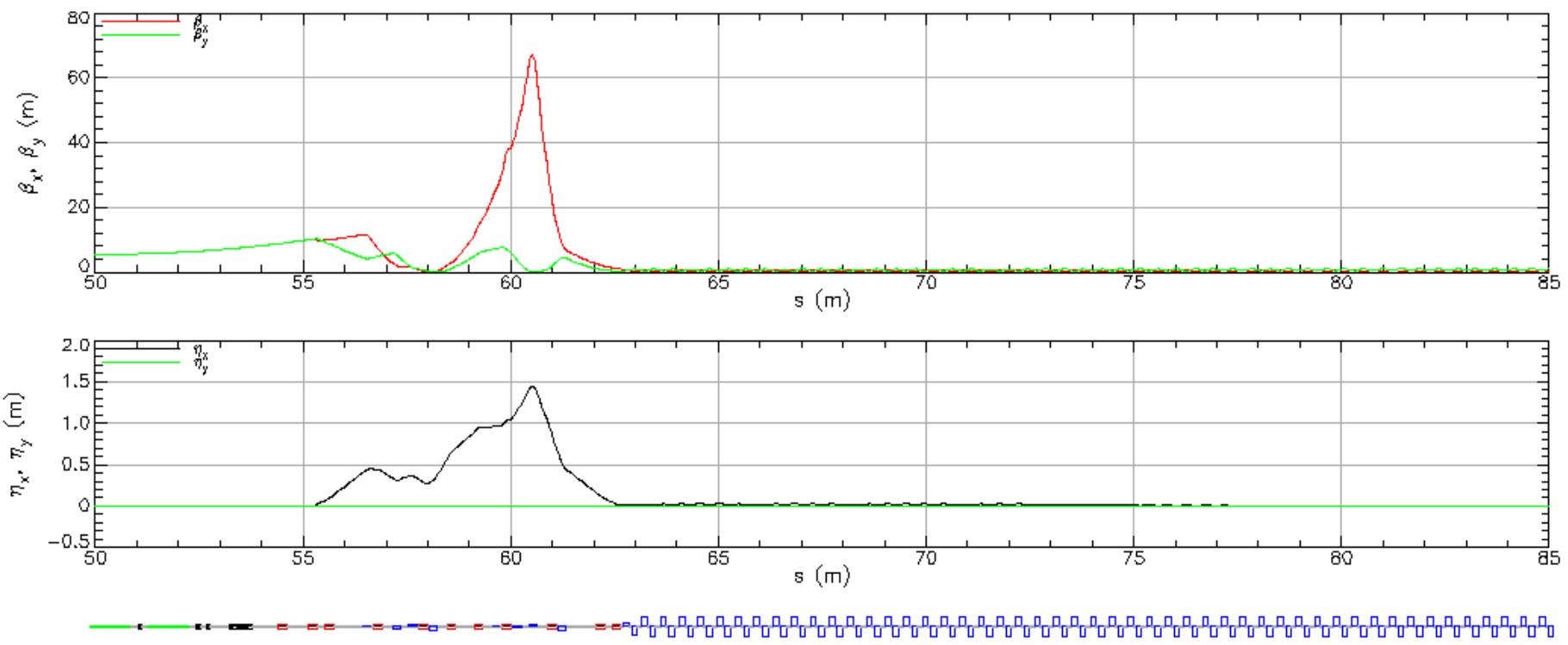
SX demerge and merge



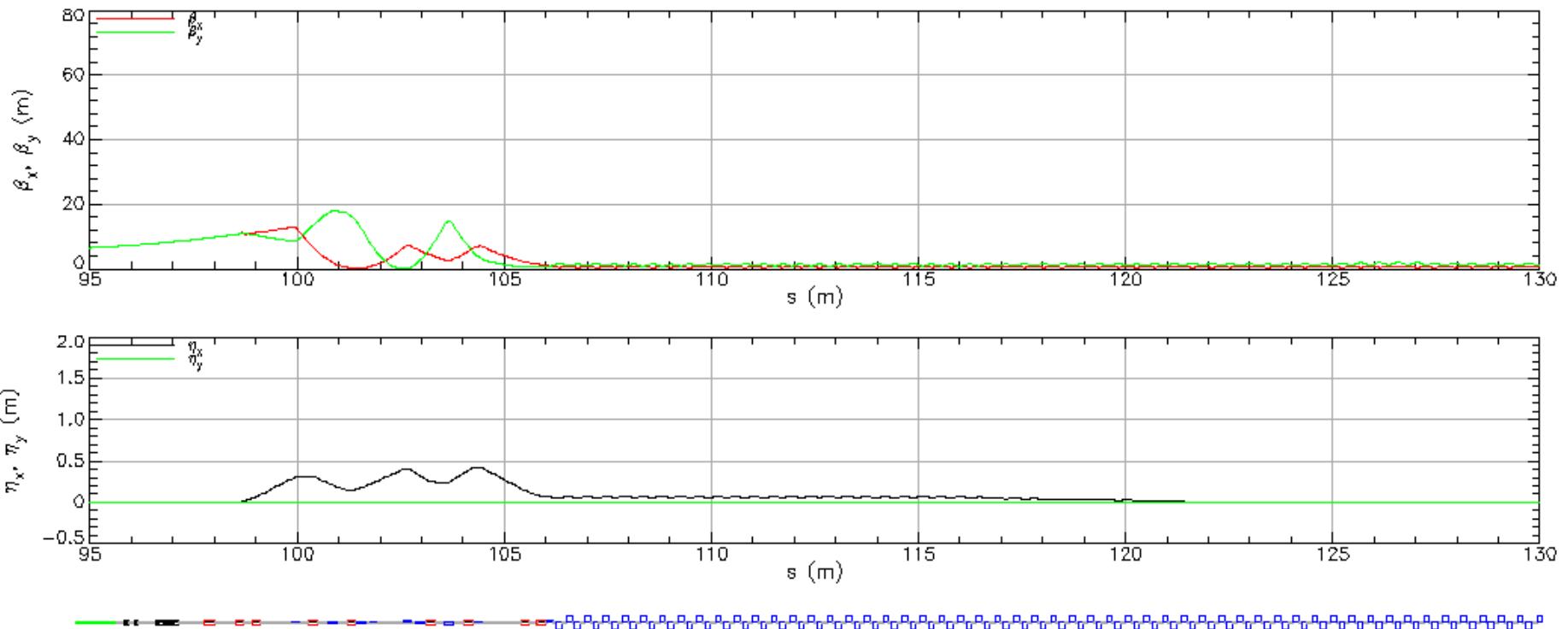
Optics pass 1



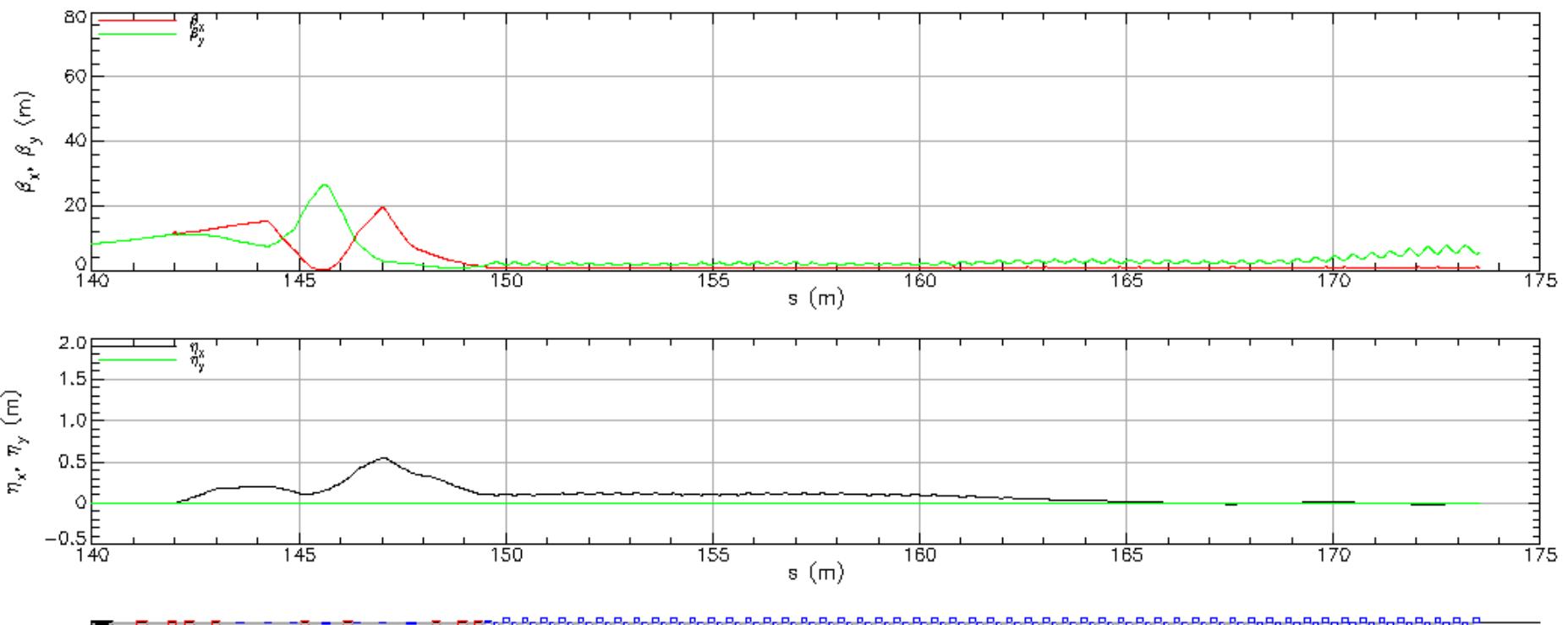
Optics pass 2



Optics pass 3



Optics pass 4



Next Steps

- Fieldmap tracking
- Make complete lattices for 1, 2, 3, 4 passes
- Particle tracking with no collective effects
- Shrink splitters using realistic magnet sizes (another design round)
- Real fieldmaps (FFAG magnets, cavities, ...)
- Wakefields (CSR, resistive wall, ...)
- Injector + Linac space charge optimization
- Touschek scattering
- Dark current tracking & collimation
- BBU
- Ion trapping
- Orbit and optics correction
- Tolerance & stability analysis